

526.728

Rec'd PCT TO 04 MAR 2005

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
18 March 2004 (18.03.2004)

PCT

(10) International Publication Number
WO 2004/022491 A1

(51) International Patent Classification⁷: C02F 1/50, 1/76

(21) International Application Number:
PCT/US2003/027768

(22) International Filing Date:
4 September 2003 (04.09.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/408,095 4 September 2002 (04.09.2002) US

(71) Applicant (for all designated States except US): BIO-LAB, INC. [US/US]; 627 E. College Avenue, Decatur, GA 30030-4148 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): HARRISON, Alan, D. [US/US]; Douglasville, GA (US). SISK, Patrick [US/US]; Marietta, GA (US).

(74) Agents: WEILACHER, Robert, G. et al.; Smith, Gambrell & Russell, LLP, Promenade II, Suite 3100, 1230 Peachtree Street, N.E., Atlanta, GA 30309-3509 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: DISINFECTION OF REVERSE OSMOSIS MEMBRANE

(57) Abstract: A process for treating a reverse osmosis membrane with a biocide to kill bacteria on or in the vicinity of a membrane by contacting a reverse osmosis membrane with a halogen biocide in combined form which slowly releases halogen in a sufficient amount to disinfect the membrane and to kill any bacteria and thereby eliminate or prevent forming a biofilm on said membrane.

WO 2004/022491 A1

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/27768

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C02F 1/50, 1/76

US CL : 210/753, 754, 764, 321.69

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 210/753, 754, 764, 321.69

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
WEST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category * | Citation of document, with indication, where appropriate, of the relevant passages | Relevant to claim No. |
|------------|--|-----------------------|
| A | US 5,198,116 A (COMSTOCK et al) 30 March 1993. | 1-17 |
| A | US 5,403,479 A (SMITH et al) 04 April 1995. | 1-17 |
| A | US 6,217,773 B1 (GRAHAM) 17 April 2001. | 1-17 |
| A,E | US 6,627,082 B2 (DEL VECCHIO et al) 30 September 2003. | 1-17 |

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

21 December 2003 (21.12.2003)

Date of mailing of the international search report

08 JAN 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US

Commissioner for Patents

P.O. Box 1450

Alexandria, Virginia 22313-1450

Facsimile No.

Authorized officer

Hoey, Betsey

Telephone No. 571-272-1158

Jean Frank
Patent Officer